Case Study
USWAWW-5170.001

Partial Mix Lagoon System Realizes Big Energy Savings

GF Series Mixers save 300 horsepower per day for a Washington State WWTP.

Topics: wastewater, partial mix, lagoon, aeration, floating wastewater mixers, energy savings

With the right mixing strategy, aeration run times can be reduced to just what is needed resulting in big energy savings.

Location & Contact Information:
Further information may be available upon request. Please contact Ixom Watercare by phone at 866-437-8076 or by e-mail, watercare@ixom.com

System Overview: Municipal and industrial wastewater lagoon system serving the local community and agricultural processing industry.

Primary Lagoon - Partial Mix
Surface Area: 5.3 acres (2.1 hectare)
Operating Depth: 12 feet (3.7 meters)
Total Volume: 17.5 MG (66,245 cubic meters)
Influent: 60% industrial, 40% municipal
Flow: 1.5 MGD (5,678 cubic meters/day)
Hydraulic Retention Time: 54.8 days

Pre-Deployment Conditions: Increases in both agricultural processing and population added to BOD and TSS loads. The existing aerators providing 300 hp/day could no longer meet the demand and an additional 150 hp/day would be required to meet the mixing need.

Project Objectives: Satisfy increased facility demands, reduce high aeration energy consumption and avoid purchasing more aerators.

Solution: Four (4) GF10000 Floating Wastewater Mixers were deployed into the lagoon (Nov. 2022).

Results: After deployment, mixing requirements of the lagoon were met and the expected additional 150 hp/day of aeration for mixing was not needed. Additionally, the facility was able to shut off half of the existing aerators reducing total aeration energy consumption to only 150 hp/day.

Combined, that's a total of 300 hp/day saved with an estimated project payback of approximately two years!

The superintendent noted, "The biggest success of adding mixing to this project is dollars; the amount of money we will be saving over the life of the facility. Energy costs will increase, but we will continue to save on that cost."

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